Drinking Water Surveillance Program

ST. CATHARINES (DECEW) WATER SUPPLY SYSTEM

Annual Report 1988

Ontario Environment Environnement

ISSN 0840-5182

91-02674/

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DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1988

FEBRUARY 1990

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

ST. CATHARINES (DECEW) WATER SUPPLY SYSTEM
1988 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The St. Catharines (DeCew) Water Supply System has a conventional treatment plant which treats water from Lake Erie via the Welland Canal. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. This plant has a design capacity of 191 x 1000 m^3/day and serves a population of approximately 148,300.

Water samples from the raw, treated and two distribution system sites were taken on a monthly basis. The St. Catharines (DeCew) Water Supply System was sampled for 160 parameters. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Chlorophenols and Specific Pesticides were analysed in June and November only.

A summary of results is shown in Table 1.

Inorganic and Physical parameters were below any applicable health related ODWOs.

Of a total of approximately 110 Organic parameters tested for on a monthly basis, none exceeded any known health related guidelines.

During 1988 the DWSP sampling results indicated that the St. Catharines (DeCew) Water Supply System produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS)

SUMMARY TABLE BY SCAN

SCAN	RAW TESTS	RAW POSITIVE	RAW %POSITIVE	TREATED TESTS	TREATED POSITIVE	TREATED %POSITIVE	SITE 1 TESTS	SITE 1 POSITIVE	SITE 1 %POSITIVE	SITE 2 TESTS	SITE 2 POSITIVE	SITE 2 %POSITIVE
BACTERIOLOGICAL	43	40	93	45	16	35	40	12	30	59	20	33
CHEMISTRY (FLD)	36	36	100	70	70	100	107	107	100	98	98	100
CHEMISTRY (LAB)	246	213	86	246	174	70	381	312	81	430	352	81
METALS	287	169	58	288	148	51	517	281	54	564	295	52
CHLOROAROMATICS	168	0	0	168	0	0	140	0	0	168	0	0
CHLOROPHENOLS	6	0	0	12	0	0	.	.	.	.	.	.
PAH	204	0	0	204	0	0	.	.	.	.	.	.
PESTICIDES & PCB	383	0	0	385	0	0	341	0	0	396	0	0
PHENOLICS	12	3	25	12	4	33	.	.	.	.	.	.
SPECIFIC PESTICIDES	50	0	0	56	0	0	0	0	0	0	0	0
VOLATILES	316	1	0	314	48	15	288	43	14	316	45	14
TOTAL	1751	462		1800	460		1814	755		2031	810	

NO HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

ST. CATHARINES (DECEW) WATER SUPPLY SYSTEM
1988 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The DWSP was initiated at the St. Catharines (DeCew) Water Supply System in the spring of 1987. An Annual Report was published (ISSN 0840-5182).

This report contains information and results for 1988.

PLANT DESCRIPTION

The St. Catharines (DeCew) Water Supply System has a conventional treatment plant which treats water from Lake Erie via the Welland Canal. This process consists of coagulation, flocculation, sedimentation, filtration and disinfection. This plant has a design capacity of 191.0 1000 m^3/day and sample day flows ranging

from 93.3 x 1000 m^3/day to 189.3 x 1000 m^3/day. It serves a population of approximately 148,300.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from four DWSP approved locations;

i) Raw - The water originated from the screen well prior to chlorination and was pumped by stainless steel pump through a stainless steel sample line. The sample tap is located in the screen room.

ii) Treated - The water originated from the 54" main heading to the distribution system after addition of all treatment chemicals and was sampled through a stainless steel sample line. The sample tap is located in the 'old' chlorine room.

iii) Distribution System - Site 1 - This house is approximately 4 kilometers from the plant. Water was sampled through copper plumbing, from the basement laundry tap.

iv) Distribution System - Site 2 - This house is approximately 8 kilometers from the plant. Water was sampled

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

ST CATHARINES WATER TREATMENT PLANT

FIGURE 2

ST. CATHARINES WATER TREATMENT PLANT

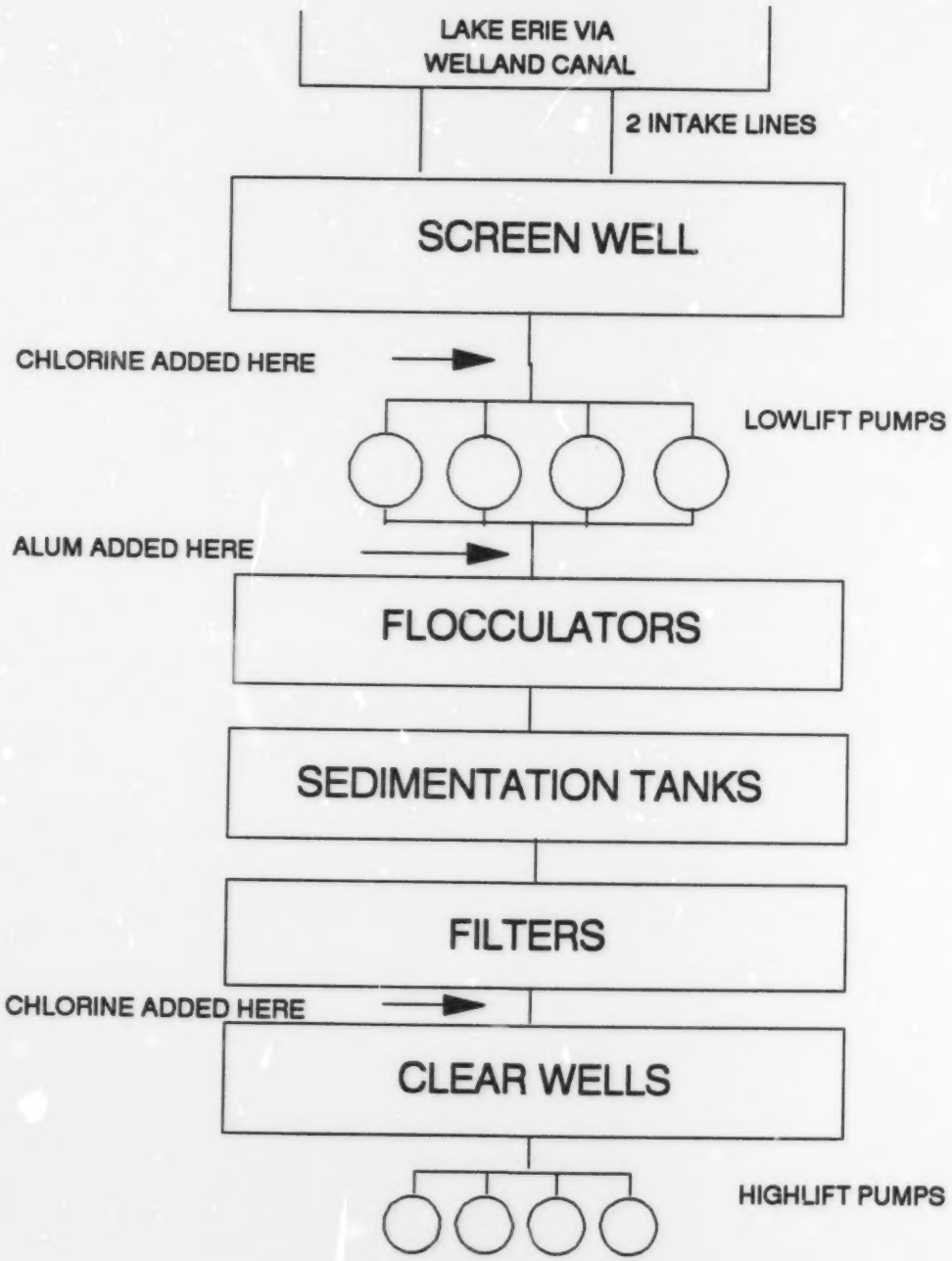

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

ST. CATHARINES (DECEW) WATER SUPPLY SYSTEM

LOCATION:	R.R. 1 FONTHILL, ONTARIO L0S 1E0 (416-684-5353)
SOURCE:	RAW WATER SOURCE - LAKE ERIE VIA WELLAND CANAL
RATED CAPACITY:	191 (1000 M^3/DAY)
OPERATION:	MUNICIPAL
PLANT SUPERINTENDENT:	A. FORBES
MINISTRY REGION:	WEST CENTRAL
DISTRICT OFFICER:	MR. W. JACKMAN

MUNICIPALITY SERVED	POPULATION
ST. CATHARINES	120,883
THOROLD	13,993
NIAGARA ON THE LAKE	10,029
VINELAND	3,375

through copper plumbing, from the basement laundry tap.

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At all distribution system locations two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing, due to leaching from (or deposition on), the plumbing system. The only analysis carried out on the standing samples therefore, were the General Chemistry and Metals scans. The free flow sample represented fresh water from the distribution main that had been flowing at the sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval

between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

Sample day flow, treatment chemical dosages and field measurements such as Turbidity, Chlorine Residuals, pH and Temperature were recorded on the day of sampling and were entered onto the DWSP data base.

RESULTS

The St. Catharines (DeCew) Water Supply System raw and treated water and two distribution system locations were sampled for approximately 160 parameters on a monthly basis. The Specific Pesticides and Chlorophenols scans were sampled in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics were only analysed in the raw and treated water at the plant. As a result of an unforeseen emergency the laboratory capacity was exceeded and analysis for volatiles could not be carried out when the samples were received. Since analysis for volatiles is no longer valid after four weeks of storage, volatile results for February are not available.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analysed in the DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameter Listing System (PALIS) recently published (ISBN 0-7729-4461-X) by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Although some of the parameters measured on DWSP may be present in the raw and treated water as a result of pollution, many of the compounds detected are naturally occurring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable results as defined by established MOE laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a

trace level of a contaminant is not considered to be significant. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriology

Positive results for the Bacteriology scan were present sixteen times in the treated water, twelve times in the Site 1 water and twenty times in the Site 2 water. In most cases the positive parameters were Standard Plate Count, Total Coliform and/or Total Coliform Background.

Coliforms as determined by the Presence/Absence test were detected once in the June Site 2 water. The District Officer was notified. Coliforms were also detected by the membrane filtration method in the treated water and Site 1 water sampled in July, in the Site 2 water sampled in September and in the treated water sampled in October.

Aeromonas organisms as determined by the Presence/Absence test were detected in the August treated water sample and the July and August Site 2 water samples.

Standard Plate Count is a test used to supplement routine analysis for Coliform bacteria. The limit for Standard Plate Count (at 35°C

after 48 hours) in the ODWO is 500 organisms per mL based on a geometric mean of 5 or more samples. High Standard Plate Counts were present in the July, August and September treated water samples, the July Site 1 water sample and the July, August and December Site 2 water samples. The high Standard Plate Count may be indicative of a deterioration in conditions in the distribution system. The presence of Coliforms, Aeromonas organisms and elevated Standard Plate Counts mostly occurred during the summer months, when temperatures in the distribution system increased probably resulting in enhanced bacterial growth. Adjustment of the disinfection dosages may be appropriate during warmer weather.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality; the routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Further, bacteriological limits were developed in acknowledgement that the presence of coliforms may be detected due to their non-uniform distribution throughout the distribution system and the fact that their enumeration is subject to considerable variation. For these reasons, the occasional finding of low numbers of coliform organisms is not unexpected. Routine bacteriological monitoring, as outlined in the ODWOs is carried out by the operating authority.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for the Laboratory Chemistry and Field Chemistry scans were below all applicable health related ODWOs.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the treated water may increase in the distribution system as a result of higher temperatures in the source water. The desired ODWO was exceeded twelve times in the treated water and free flow distributed water.

The ODWO indicates that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters, provides an acceptable balance between corrosion and incrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption. Hardness levels for the St. Catharines (DeCew) water ranged from 121 mg/L as calcium carbonate to 148 mg/L.

The Langelier Index is used extensively in estimating the corrosion potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound

engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for St. Catharines is consistently positive.

Metals

The results reported for the Metals scan were all below any applicable health related ODWOs.

Copper, Iron, Manganese and Zinc levels were lower in the treated water as compared to the raw water. This is a result of the treatment process. The addition of Alum as a coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels of most metals.

Elevated levels of Copper, Lead and Zinc were detected in the standing samples as compared to the free flow distribution samples thus, indicating that these metals were leached from the household plumbing as the water stood overnight. Although the Langelier Index indicates minimal potential for corrosion some metals will be leached in standing samples in most supplies.

The Beryllium value of .21 ug/L in the November Site 2 water sample is marginally greater than the USSR Maximum Permissible Concentration of .20 ug/L for Beryllium in drinking water.

At present, there is no evidence that Aluminum is physiologically

harmful and no health limit for drinking water has been specified. The measure of residual Aluminum in the treated water is important to indicate the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as Al in the water leaving the plant to avoid problems in the distribution system. Aluminum values exceeded the ODWO operational guideline seven times in the treated water.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that no chloroaromatics were detected.

Chlorophenols

The results of the Chlorophenols scan showed that no Chlorophenols were detected.

Pesticides and PCB (Polychlorinated Biphenyls)

The results of the Pesticides and PCB scan showed that no PCBs were detected and that three pesticides were detected:

Alpha BHC

Lindane

Atrazine

There are several isomers of BHC (Benzene Hexachloride); gamma BHC is the active ingredient in the pesticide Lindane, while alpha BHC is the isomer predominantly found in surface waters from the Great Lakes Basin.

Alpha BHC was detected, at trace levels, seven times in the raw and treated water, twice in the Site 1 water and six times in the Site 2 water.

Lindane was detected, at trace levels, twice in the raw water, four times in the treated water and once in the Site 2 water.

Atrazine was detected at trace levels, once in the Site 1 water and once in the Site 2 water.

Specific Pesticides

Results of the Specific Pesticides scan showed that no Specific pesticides were detected.

Phenolics

The maximum desirable concentration of phenolic substances in drinking water is 2.0 ug/L. This limit has been set primarily to prevent the occurrence of undesirable tastes and odours, particularly in chlorinated water. Phenolics were detected in the raw water at quantifiable levels ranging from 1.4 ug/L to 2.4 ug/L and in the treated water ranging from 1.2 ug/L to 1.6 ug/L.

Phenolics were detected at trace levels, six times in the raw water and treated water. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAHs)

The results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatiles scan showed that nine parameters, other than Trihalomethanes(THMs), were detected:

- Benzene
- Toluene
- Ethylbenzene
- Meta & Para-Xylene
- Ortho-Xylene
- Styrene
- Methylene Chloride
- 1,1,1-Trichloroethane
- Tetrachloroethylene

Benzene was detected at trace levels, twice in the treated water, once in the Site 1 water and once in the Site 2 water.

Toluene was detected at trace levels, six times in the treated water and five times in the Site 1 water and four times in the Site 2 water. The detection of toluene at low, trace levels is a

laboratory artifact derived from the analytical methodology. The purge-and-trap analytical technique depends on the purging of the volatile organics in the water sample with helium gas onto a Tenax trapping column. The volatile materials are subsequently thermally desorbed, separated and quantified. Tenax, a toluene-like polymeric material, tends to decompose sporadically upon heating into toluene and other aromatic componenets (ethylbenzene and xylene) giving instrument blanks in the order of 0.05 ug/L.

The detected trace levels of Styrene are also considered to be laboratory artifacts due to the outgassing of monomeric styrene from the polystyrene shipping containers. The sporadic background levels from this source are in the order of 0.05 ug/L.

Ethylbenzene was detected at trace levels, six times in the treated water, three times in the Site 1 water and six times in the Site 2 water.

Para and Meta-Xylene (P & M-Xylene) are reported as M-Xylene, P-Xylene may not always be detected. M-Xylene was detected at trace levels, twice in the treated water and twice in the Site 2 water. P-Xylene was detected once in the treated water at a trace level.

The volatiles listed above are typically found on an occasional basis at other water supplies included on the DWSP usually at trace levels.

levels.

Methylene Chloride was detected in January in the raw, treated and Site 1 water. Laboratory staff considered the results to be unreliable due to contamination as per the remark 'UCS'.

1,1,1-Trichloroethane was detected at trace levels, once in the treated water and once in the Site 1 water.

Tetrachloroethylene (T-Chloroethylene) was detected at a trace level, once in the Site 2 water.

THMs are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and Total THMs were always detected in the treated water samples. Bromoform was detected at trace levels in all but one treated water sample. All Total THM occurrences, ranging from 7.4 to 55.3 ug/L, were well below the ODWO of 350 ug/L.

CONCLUSIONS

The St. Catharines (DeCew) Water Supply System for the sample year of 1988, as in 1987, produced good quality water at the plant and this was maintained in the distribution system.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1988.

RECOMMENDATIONS

Three recommendations can be made:

1) Although increased chlorine dosages are used during the summer months further adjustment of the disinfection dosages may be appropriate.

2) Remote sites (eg. Niagara-on-the-Lake and Vineland) should be added to the distribution system sampling locations.

3) The reason for elevated aluminum levels in the treated water should be investigated.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) SAMPLE DAY CONDITIONS FO 1988

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)			
			PRE-CHLORINATION	COAGULATION	FLUORIDATION	POST-CHLORINATION
DATE	RETENTION TIME(HRS)	FLOW (1000M3)	CHLORINE	ALUM LIQUID	HYDROFLUOSILICIC ACID	CHLORINE
JAN 19	10.6	96.3	.80	10.58	.	.20
FEB 16	10.9	93.3	.80	9.09	.	.25
MAR 22	10.5	96.3	.70	5.97	.	.20
APR 19	10.5	96.6	.80	6.72	.	.22
MAY 17	10.0	103.7	.90	6.77	.	.22
JUN 21	5.3	189.3	.90	8.21	.22	.22
JUL 19	6.5	159.1	1.20	7.54	.	.38
AUG 16	6.9	145.7	1.20	8.47	.	.37
SEP 20	8.1	126.0	1.20	6.48	.	.42
OCT 18	5.0	113.1	1.30	5.25	.	.40
NOV 22	10.3	98.0	1.00	7.43	.	.25
DEC 13	10.0	101.5	.90	9.94	.	.18

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) SAMPLE DAY CONDITIONS FOR 1988

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)		
			PRE-CHLORINATION	COAGULATION	POST-CHLORINATION
			CHLORINE	ALUM LIQUID	CHLORINE
DATE	RETENTION TIME(HRS)	FLOW (1000M3)			
JAN 19	10.6	96.3	.80	10.58	.20
FEB 16	10.9	93.3	.80	9.09	.25
MAR 22	10.5	96.3	.70	5.97	.20
APR 19	10.5	96.6	.80	6.72	.22
MAY 17	10.0	103.7	.90	6.77	.22
JUN 21	5.3	189.3	.90	8.21	.22
JUL 19	6.5	159.1	1.20	7.54	.38
AUG 16	6.9	145.7	1.20	8.47	.37
SEP 20	8.1	126.0	1.20	6.48	.42
OCT 18	5.0	113.1	1.30	5.25	.40
NOV 22	10.3	98.0	1.00	7.43	.25
DEC 13	10.0	101.5	.90	9.94	.18

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	AEROMONAS SP	.	.	.	1	1	0	.	.	.	3	2	0
	E. COLI P/A	.	.	.	1	0	0	.	.	.	3	0	0
	FECAL COLIFORM MF	12	9	0	.	.	.	.	.	.	.	.	.
	FECAL COLIFORM	.	.	.	1	0	0	.	.	.	3	0	0
	STANDRD PLATE CNT MF	7	7	0	11	8	0	11	9	0	12	9	0
	P/A BOTTLE	.	.	.	7	1	0	7	0	0	8	3	0
	STAPH AUREUS	.	.	.	1	0	0	.	.	.	3	0	0
	COLIFORM	.	.	.	1	0	0	.	.	.	3	1	0
	TOTAL COLIFORM MF	12	12	0	11	2	0	11	1	0	12	1	0
	T COLIFORM BCKGRD MF	12	12	0	11	4	0	11	2	0	12	4	0
*TOTAL SCAN BACTERIOLOGICAL		43	40	0	45	16	0	40	12	0	59	20	0
*TOTAL GROUP BACTERIOLOGICAL		43	40	0	45	16	0	40	12	0	59	20	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	10	10	0	5	5	0	10	10	0
	FLD CHLORINE FREE	.	.	.	12	12	0	20	20	0	4	4	0
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0	18	18	0	12	12	0
	FLD PH	12	12	0	12	12	0	22	22	0	24	24	0
	FLD TEMPERATURE	12	12	0	12	12	0	20	20	0	24	24	0
	FLD TURBIDITY	12	12	0	12	12	0	22	22	0	24	24	0
*TOTAL SCAN CHEMISTRY (FLD)		36	36	0	70	70	0	107	107	0	98	98	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	21	21	0	24	24	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	CALCIUM	12	12	0	12	12	0	21	21	0	24	24	0
	CYANIDE	12	0	0	12	0	0	11	0	0	11	0	0
	CHLORIDE	12	12	0	12	12	0	22	22	0	24	24	0
	COLOUR	12	8	4	12	0	11	22	6	16	24	0	24
	CONDUCTIVITY	12	12	0	12	12	0	21	21	0	24	24	0
	FLUORIDE	12	12	0	12	12	0	22	22	0	24	24	0
	HARDNESS	12	12	0	12	12	0	21	21	0	24	24	0
	IONCAL	12	6	0	12	6	0	22	10	0	24	12	0
	LANGELIERS INDEX	12	12	0	12	12	0	21	21	0	24	24	0
	MAGNESIUM	12	12	0	12	12	0	21	21	0	24	24	0
	SODIUM	12	12	0	12	12	0	21	21	0	24	24	0
	AMMONIUM TOTAL	12	12	0	12	7	5	21	13	8	24	17	7
	NITRITE	12	11	1	12	1	9	21	2	19	24	4	20
	TOTAL NITRATES	12	9	3	12	9	3	21	18	3	24	20	4
	NITROGEN TOT KJELD	12	12	0	12	12	0	20	20	0	23	23	0
	PH	12	12	0	12	12	0	21	21	0	24	24	0
	PHOSPHORUS FIL REACT	12	8	4	12	0	10	.	.	.	.	.	.
	PHOSPHORUS TOTAL	12	9	3	12	1	8	.	.	.	.	.	.
	SULPHATE	6	6	0	6	6	0	10	10	0	12	12	0
	TURBIDITY	12	12	0	12	12	0	21	21	0	24	24	0
*TOTAL SCAN CHEMISTRY (LAB)		246	213	15	246	174	46	381	312	46	430	352	55
METALS	SILVER	12	0	6	12	0	7	22	0	8	24	0	11

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
METALS	ALUMINUM	12	12	0	12	12	0	22	22	0	24	24	0
	ARSENIC	12	1	11	12	0	11	22	0	22	24	0	24
	BARIUM	12	12	0	12	12	0	22	21	1	24	24	0
	BORON	12	12	0	12	12	0	22	22	0	24	22	2
	BERYLLIUM	12	0	8	12	0	4	22	0	12	24	0	12
	CADMIUM	12	0	2	12	0	2	22	0	7	24	0	18
	COBALT	12	0	12	12	2	10	22	0	22	24	0	22
	CHROMIUM	12	6	6	12	2	10	22	8	11	24	6	18
	COPPER	12	12	0	12	6	6	22	22	0	24	24	0
	IRON	12	12	0	12	0	9	22	12	10	24	2	22
	MERCURY	11	6	3	12	8	4	11	11	0	12	1	2
	MANGANESE	12	12	0	12	11	1	22	22	0	24	24	0
	MOLYBDENUM	12	12	0	12	12	0	22	22	0	24	24	0
	NICKEL	12	2	10	12	2	9	22	6	16	24	9	14
	LEAD	12	10	2	12	10	2	22	13	9	24	19	5
	ANTIMONY	12	11	1	12	9	3	22	13	9	24	17	7
	SELENIUM	12	0	9	12	0	12	22	0	21	24	0	23
	STRONTIUM	12	12	0	12	12	0	22	22	0	24	24	0
	TITANIUM	12	12	0	12	10	2	22	20	2	24	22	2
	THALLIUM	12	0	5	12	0	5	22	0	11	24	0	11
	URANIUM	12	12	0	12	12	0	22	21	0	24	24	0
	VANADIUM	12	1	11	12	6	6	22	3	19	24	5	19
	ZINC	12	12	0	12	10	2	22	21	1	24	24	0
*TOTAL SCAN METALS		287	169	86	288	148	105	517	281	181	564	295	212
*TOTAL GROUP INORGANIC & PHYSICAL		569	418	101	604	392	151	1005	700	227	1092	745	267

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROAROMATICS	HEXACHLOROBUTADIENE	12	0	0	12	0	0	10	0	0	12	0	0
	123 TRICHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	1234 T-CHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	1235 T-CHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	124 TRICHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	1245 T-CHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	135 TRICHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	HCB	12	0	0	12	0	0	10	0	0	12	0	0
	HEXACHLOROETHANE	12	0	0	12	0	0	10	0	0	12	0	0
	OCTACHLOROSTYRENE	12	0	0	12	0	0	10	0	0	12	0	0
	PENTACHLOROBENZENE	12	0	0	12	0	0	10	0	0	12	0	0
	236 TRICHLOROTOLUENE	12	0	0	12	0	0	10	0	0	12	0	0
	245 TRICHLOROTOLUENE	12	0	0	12	0	0	10	0	0	12	0	0
	26A TRICHLOROTOLUENE	12	0	0	12	0	0	10	0	0	12	0	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	168	0	0	140	0	0	168	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	1	0	0	2	0	0	.	.	.	.	.	.
	2345 T-CHLOROPHENOL	1	0	0	2	0	0	.	.	.	.	.	.
	2356 T-CHLOROPHENOL	1	0	0	2	0	0	.	.	.	.	.	.
	245-TRICHLOROPHENOL	1	0	0	2	0	0	.	.	.	.	.	.
	246-TRICHLOROPHENOL	1	0	0	2	0	0	.	.	.	.	.	.
	PENTACHLOROPHENOL	1	0	0	2	0	0	.	.	.	.	.	.
*TOTAL SCAN CHLOROPHENOLS		6	0	0	12	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PAH	PHENANTHRENE	12	0	0	12	0	0	.	.	.	.	.	.
	ANTHRACENE	12	0	0	12	0	0	.	.	.	.	.	.
	FLUORANTHENE	12	0	0	12	0	0	.	.	.	.	.	.
	PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(A)ANTHRACENE	12	0	0	12	0	0	.	.	.	.	.	.
	CHRYSENE	12	0	0	12	0	0	.	.	.	.	.	.
	DIMETH. BENZ(A)ANTHR	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(E) PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(J) FLUORANTHEN	0	0	0	0	0	0	.	.	.	.	.	.
	BENZO(B) FLUORANTHEN	12	0	0	12	0	0	.	.	.	.	.	.
	PERYLENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(K) FLUORANTHEN	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(A) PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0	.	.	.	.	.	.
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0	.	.	.	.	.	.
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(B) CHRYSENE	12	0	0	12	0	0	.	.	.	.	.	.
	ANTHANTHRENE	0	0	0	0	0	0	.	.	.	.	.	.
	CORONENE	12	0	0	12	0	0	.	.	.	.	.	.
*TOTAL SCAN PAH		204	0	0	204	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	12	0	0	12	0	0	10	0	0	12	0	0
	ALPHA BHC	12	0	7	12	0	7	10	0	2	12	0	6

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PESTICIDES & PCB	BETA BHC	12	0	0	12	0	0	10	0	0	12	0	0
	LINDANE	12	0	2	12	0	4	10	0	0	12	0	1
	ALPHA CHLORDANE	12	0	0	12	0	0	10	0	0	12	0	0
	GAMMA CHLORDANE	12	0	0	12	0	0	10	0	0	12	0	0
	DIELDRIN	12	0	0	12	0	0	10	0	0	12	0	0
	METHOXYCHLOR	12	0	0	12	0	0	10	0	0	12	0	0
	ENDOSULFAN 1	12	0	0	12	0	0	10	0	0	12	0	0
	ENDOSULFAN II	12	0	0	12	0	0	10	0	0	12	0	0
	ENDRIN	12	0	0	12	0	0	10	0	0	12	0	0
	ENDOSULFAN SULPHATE	12	0	0	12	0	0	10	0	0	12	0	0
	HEPTACHLOR EPOXIDE	12	0	0	12	0	0	10	0	0	12	0	0
	HEPTACHLOR	12	0	0	12	0	0	10	0	0	12	0	0
	MIREX	12	0	0	12	0	0	10	0	0	12	0	0
	OXYCHLORDANE	12	0	0	12	0	0	10	0	0	12	0	0
	OPDDT	12	0	0	12	0	0	10	0	0	12	0	0
	PCB	12	0	0	12	0	0	10	0	0	12	0	0
	DDD	12	0	0	12	0	0	10	0	0	12	0	0
	PPDDE	12	0	0	12	0	0	10	0	0	12	0	0
	PPDDT	12	0	0	12	0	0	10	0	0	12	0	0
	AMETRINE	11	0	0	11	0	0	11	0	0	12	0	0
	ATRAZINE	11	0	0	11	0	0	11	0	1	12	0	1
	ATRATONE	11	0	0	11	0	0	11	0	0	12	0	0
	CYANAZINE	11	0	0	11	0	0	11	0	0	12	0	0
	DES ETHYL ATRAZINE	5	0	0	6	0	0	5	0	0	6	0	0
	DES ETHYL SIMAZINE	5	0	0	6	0	0	5	0	0	6	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PESTICIDES & PCB	PROMETONE	11	0	0	11	0	0	11	0	0	12	0	0
	PROPAZINE	11	0	0	11	0	0	11	0	0	12	0	0
	PROMETRYNE	11	0	0	11	0	0	11	0	0	12	0	0
	METRIBUZIN	11	0	0	11	0	0	11	0	0	12	0	0
	SIMAZINE	11	0	0	11	0	0	11	0	0	12	0	0
	ALACHLOR	11	0	0	11	0	0	11	0	0	12	0	0
	METOLACHLOR	11	0	0	11	0	0	11	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		383	0	9	385	0	11	341	0	3	396	0	8
PHENOLICS	PHENOLICS	12	3	6	12	4	6	.	.	.	.	.	.
*TOTAL SCAN PHENOLICS		12	3	6	12	4	6	0	0	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	0	0	0	0	0	0	0	0	0	0	0	0
	2,4,5-T	1	0	0	2	0	0	.	.	.	.	.	.
	2,4-D	1	0	0	2	0	0	.	.	.	.	.	.
	2,4-DB	1	0	0	2	0	0	.	.	.	.	.	.
	2,4 D PROPIONIC ACID	1	0	0	2	0	0	.	.	.	.	.	.
	DICAMBA	1	0	0	2	0	0	.	.	.	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.	.	.	.
	SILVEX	1	0	0	2	0	0	.	.	.	.	.	.
	DIAZINON	2	0	0	2	0	0	.	.	.	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
SPECIFIC PESTICIDES	DICHLOROVOS	2	0	0	2	0	0	.	.	.	.	.	.
	CHLORPYRIFOS	2	0	0	2	0	0	.	.	.	.	.	.
	ETHION	2	0	0	2	0	0	.	.	.	.	.	.
	AZINPHOS-METHYL	0	0	0	0	0	0	.	.	.	.	.	.
	MALATHION	2	0	0	2	0	0	.	.	.	.	.	.
	MEVINPHOS	2	0	0	2	0	0	.	.	.	.	.	.
	METHYL PARATHION	2	0	0	2	0	0	.	.	.	.	.	.
	METHYLTRITHION	2	0	0	2	0	0	.	.	.	.	.	.
	PARATHION	2	0	0	2	0	0	.	.	.	.	.	.
	PHORATE	2	0	0	2	0	0	.	.	.	.	.	.
	RELDAN	2	0	0	2	0	0	.	.	.	.	.	.
	RONNEL	2	0	0	2	0	0	.	.	.	.	.	.
	AMINOCARB	0	0	0	0	0	0	.	.	.	.	.	.
	BENOMYL	2	0	0	2	0	0	.	.	.	.	.	.
	BUX	2	0	0	2	0	0	.	.	.	.	.	.
	CARBOFURAN	2	0	0	2	0	0	.	.	.	.	.	.
	CICP	2	0	0	2	0	0	.	.	.	.	.	.
	DIALLATE	2	0	0	2	0	0	.	.	.	.	.	.
	EPTAN	2	0	0	2	0	0	.	.	.	.	.	.
	IPC	2	0	0	2	0	0	.	.	.	.	.	.
	PROPOXUR	2	0	0	2	0	0	.	.	.	.	.	.
	CARBARYL	2	0	0	2	0	0	.	.	.	.	.	.
	BUTYLATE	2	0	0	2	0	0	.	.	.	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES		50	0	0	56	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	BENZENE	11	0	0	11	0	2	10	0	1	11	0	1
	TOLUENE	11	0	0	11	2	4	10	2	3	11	1	3
	ETHYLBENZENE	11	0	0	11	0	6	10	0	3	11	0	6
	P-XYLENE	11	0	0	11	0	1	10	0	0	11	0	0
	M-XYLENE	11	0	0	11	1	1	10	0	0	11	0	2
	O-XYLENE	11	0	0	11	0	2	10	0	0	11	0	0
	STYRENE	3	0	2	3	0	1	3	0	3	3	0	2
	1,1 DICHLOROETHYLENE	11	0	0	11	0	0	10	0	0	11	0	0
	METHYLENE CHLORIDE	11	1	0	11	1	0	10	1	0	11	0	0
	T1,2DICHLOROETHYLENE	11	0	0	11	0	0	10	0	0	11	0	0
	1,1 DICHLOROETHANE	11	0	0	11	0	0	10	0	0	11	0	0
	CHLOROFORM	11	0	4	11	11	0	10	10	0	11	11	0
	111, TRICHLOROETHANE	11	0	0	11	0	1	10	0	1	11	0	0
	1,2 DICHLOROETHANE	11	0	0	11	0	0	10	0	0	11	0	0
	CARBON TETRACHLORIDE	11	0	0	11	0	0	10	0	0	11	0	0
	1,2 DICHLOROPROPANE	11	0	0	11	0	0	10	0	0	11	0	0
	TRICHLOROETHYLENE	11	0	0	11	0	0	10	0	0	11	0	0
	DICHLOROBROMOMETHANE	11	0	1	11	11	0	10	10	0	11	11	0
	112 TRICHLOROETHANE	11	0	0	10	0	0	10	0	0	11	0	0
	CHLORODIBROMOMETHANE	11	0	1	11	11	0	10	10	0	11	11	0
	T-CHLOROETHYLENE	11	0	0	10	0	0	10	0	0	11	0	1
	BROMOFORM	11	0	0	11	0	11	10	0	10	11	0	10
	1122 T-CHLOROETHANE	11	0	0	11	0	0	10	0	0	11	0	0
	CHLOROBENZENE	11	0	0	11	0	0	10	0	0	11	0	0
	1,4 DICHLOROBENZENE	11	0	0	11	0	0	10	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	1,3 DICHLOROBENZENE	11	0	0	11	0	0	10	0	0	11	0	0
	1,2 DICHLOROBENZENE	11	0	0	11	0	0	10	0	0	11	0	0
	TRIFLUOROCHLOROTOLUE	5	0	0	5	0	0	5	0	0	5	0	0
	ETHLYENE DIBROMIDE	11	0	0	11	0	0	10	0	0	11	0	0
	TOTL TRIHALOMETHANES	11	0	1	11	11	0	10	10	0	11	11	0
*TOTAL SCAN VOLATILES		316	1	9	314	48	29	288	43	21	316	45	25
*TOTAL GROUP ORGANIC		1139	4	24	1151	52	46	769	43	24	880	45	33
TOTAL		1751	462	125	1800	460	197	1814	755	251	2031	810	300

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)

1. Maximum Acceptable Concentration (MAC)

1+. MAC for Total Trihalomethanes

1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)

1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, the AO is a total)

C WORLD HEALTH ORGANIZATION (WHO)

1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)

1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)

1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only

PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL						
AEROMONAS SP ( )			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)	
JUN	.	.	.	.	.	0
JUL	.	.	.	.	.	1
AUG	.	1	.	.	.	1
E. COLI P/A ( )			DET'N LIMIT = N/A		GUIDELINE = N/A	
JUN	.	.	.	.	.	0
JUL	.	.	.	.	.	0
AUG	.	0	.	.	.	0
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 0 (A1)	
JAN	3	.	.	.	.	.
FEB	4	.	.	.	.	.
MAR	0	.	.	.	.	.
APR	0	.	.	.	.	.
MAY	0	.	.	.	.	.
JUN	9	.	.	.	.	.
JUL	191	.	.	.	.	.
AUG	33	.	.	.	.	.
SEP	18 T48	.	.	.	.	.
OCT	4 T48	.	.	.	.	.
NOV	5 T48	.	.	.	.	.
DEC	8 T48	.	.	.	.	.
FECAL COLIFORM ( )			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)	
JUN	.	.	.	.	.	0
JUL	.	.	.	.	.	0
AUG	.	0	.	.	.	0
STANDRD PLATE CNT MF (CT/ML)			DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)	
JAN	76	.	.	2	.	0
FEB	127	4	.	5	.	6
MAR	21	2	.	3	.	2
APR	170	1	.	0	.	11
MAY	2400 >	28	.	35	.	38
JUN	2400 >	3	.	27	.	44
JUL	2400 >	2400 >	.	510	.	2100
AUG	TOP	2400 >	.	.	.	2400 >
SEP	.	2400 >	.	23 T24	.	104 T24
OCT	.	2 <=>	.	10 T24	.	5 <=>

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEV WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
NOV	.	0 <=>	.	8 <=>	.	8 <=>
DEC	.	0 <=>	.	19 T24	.	630 T24
P/A BOTTLE ( )			DET'N LIMIT = 0	GUIDELINE = 0 (A1*)		
JAN	.	.	.	0	.	0
FEB	.	0	.	0	.	0
MAR	.	0	.	0	.	0
APR	.	0	.	0	.	0
MAY	.	0	.	0	.	0
JUN	.	0	.	0	.	1
JUL	.	0	.	0	.	1
AUG	.	1	.	.	.	1
STAPH AUREUS ( )			DET'N LIMIT = N/A	GUIDELINE = 0 (A1)		
JUN	.	.	.	.	.	0
JUL	.	.	.	.	.	0
AUG	.	0	.	.	.	0
COLIFORM ( )			DET'N LIMIT = N/A	GUIDELINE = 0 (A1)		
JUN	.	.	.	.	.	1
JUL	.	.	.	.	.	0
AUG	.	0	.	.	.	0
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = 5/100ML(A1)		
JAN	82	.	.	0	.	0
FEB	146 A3C	0	.	0	.	0
MAR	34	0	.	0	.	0
APR	22	0	.	0	.	0
MAY	8 A3C	0	.	0	.	0
JUN	11 A3C	0	.	0	.	0
JUL	600	1 A3C	.	1 A3C	.	0
AUG	42 A3C	0	.	.	.	0
SEP	51 A3C	0 T48	.	0 T24	.	2 T24
OCT	240 A3C	1 T48	.	0 T24	.	0 T24
NOV	120 A3C	0 T48	.	0 T24	.	0 T24
DEC	150 A3C	0 T48	.	0 T24	.	0 T24
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0	GUIDELINE = N/A		
JAN	238	.	.	0	.	0
FEB	1240	0	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
				STANDING	FREE FLOW	STANDING	FREE FLOW
MAR		52	0	.	0	.	0
APR		190	0	.	0	.	0
MAY		3600	0	.	0	.	8
JUN		700	0	.	2	.	0
JUL		7300	1800	.	1100	.	2200
AUG		70000	900	.	.	.	1300
SEP		2400 >	0 T48	.	0 T24	.	10 T24
OCT		5700 A3C	1 T48	.	0 T24	.	0 T24
NOV		9600 A3C	0 T48	.	0 T24	.	0 T24
DEC		8000 A3C	1 T48	.	0 T24	.	0 T24

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEV WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)						
FLD CHLORINE (COMB) ( )		DET'N LIMIT = N/A		GUIDELINE = N/A		
JAN	.	.140	.	.	.100	.100
FEB	.	.090	.	.	.060	.200
MAR	.	.100	.	.	.	.100
APR	.	.600	.	.	.	.100
MAY	.	.120	.	.	.	.050
JUN	.	.250	.	.	.	.
JUL	.	.100	.	.	.	.
SEP	.	.100	.040	.050	.	.
OCT	.	.	.	.	.	.100
NOV	.	.110	.020	.040	.	.
DEC	.	.140	.020	.	.100	.100
FLD CHLORINE FREE ( )		DET'N LIMIT = N/A		GUIDELINE = N/A		
JAN	.	.380	.150	.150	.	.
FEB	.	.250	.100	.100	.040	.100
MAR	.	.600	.100	.100	.	.150
APR	.	.300	.100	.100	.100	.
MAY	.	.320	.100	.100	.	.
JUN	.	.200	.	.	.	.
JUL	.	.300	.100	.100	.	.
AUG	.	.250	.	.	.	.
SEP	.	.200	.050	.050	.	.
OCT	.	.240	.100	.090	.	.
NOV	.	.410	.130	.090	.	.
DEC	.	.430	.080	.080	.	.
FLD CHLORINE (TOTAL) ( )		DET'N LIMIT = N/A		GUIDELINE = N/A		
JAN	.	.520	.150	.150	.100	.140
FEB	.	.340	.100	.100	.100	.300
MAR	.	.700	.100	.100	.	.250
APR	.	.900	.100	.100	.100	.100
MAY	.	.440	.100	.100	.	.050
JUN	.	.300	.	.	.020	.
JUL	.	.400	.	.	.	.
AUG	.	.350	.	.	.	.
SEP	.	.300	.090	.100	.	.
OCT	.	.280	.100	.090	.	.100
NOV	.	.520	.150	.130	.	.
DEC	.	.570	.100	.080	.100	.100
FLD PH (DIMENSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	7.700	7.500	7.500	7.500	7.500	7.300
FEB	7.700	7.500	7.500	7.500	7.440	7.400
MAR	7.900	7.600	7.500	7.550	7.500	7.550
APR	7.300	7.500	7.600	7.450	7.500	7.500
MAY	7.900	6.200	7.700	7.700	7.600	7.700
JUN	7.900	7.500	7.700	7.700	7.700	7.680
JUL	7.900	7.500	7.700	7.500	7.600	7.590
AUG	7.900	7.500	.	.	7.500	7.600
SEP	8.100	7.700	7.650	7.500	7.600	7.500
OCT	7.900	7.600	7.650	7.650	7.500	7.500
NOV	7.900	7.800	7.600	7.650	7.400	7.500
DEC	7.700	7.700	7.550	7.570	7.500	7.500
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A1)	
JAN	3.000	3.000	17.300	6.700	18.000	6.800
FEB	3.000	9.400	11.500	5.200	15.200	4.900
MAR	2.000	3.000	16.900	5.400	13.000	4.000
APR	6.000	7.000	15.100	7.800	15.000	8.000
MAY	14.000	14.000	18.700	11.100	18.000	14.000
JUN	19.000	19.000	.	.	22.000	18.000
JUL	25.100	24.500	25.000	20.000	25.000	22.500
AUG	28.500	26.500	.	.	24.000	24.000
SEP	22.000	21.000	21.700	19.800	23.000	20.000
OCT	14.000	14.000	21.000	15.300	19.000	16.500
NOV	8.000	7.000	18.000	12.000	16.000	11.000
DEC	4.000	10.000	18.100	10.000	17.000	9.000
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)	
JAN	9.500	.310	.470	.520	.180	.250
FEB	4.200	.250	.550	.480	.220	.360
MAR	2.200	.150	.280	.430	.160	.270
APR	5.500	.330	.470	.540	.210	.230
MAY	4.900	.160	.330	.320	.210	.240
JUN	6.100	.130	.260	.310	.200	.240
JUL	4.000	.150	.270	.320	.370	.340
AUG	6.200	.240	.	.	.230	.220
SEP	5.400	.250	.400	.280	.280	.300
OCT	5.800	.190	.330	.290	.340	.240
NOV	7.500	.250	.310	.290	.340	.310
DEC	9.300	.400	.190	.260	.430	.330

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (LAB)						
ALKALINITY (MG/L)			DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)	
JAN	108.900	103.000	102.500	101.400	103.900	103.400
FEB	106.600	102.800	102.700	103.500	103.200	102.600
MAR	104.500	99.700	100.700	99.600	100.600	100.200
APR	102.700	98.900	97.200	96.800	97.100	91.800
MAY	105.600	101.000	103.500	101.200	102.100	101.500
JUN	103.100	98.300	IIS	98.600	98.300	98.900
JUL	99.200	95.200	96.200	95.200	95.100	95.500
AUG	100.100	95.200	.	.	95.900	94.900
SEP	98.500	95.900	97.600	97.300	97.400	97.400
OCT	103.900	99.200	101.800	100.200	99.700	99.900
NOV	106.100	101.200	104.300	100.800	101.300	101.800
DEC	109.200	104.200	104.400	104.400	105.100	105.500
CALCIUM (MG/L)			DET'N LIMIT = .100		GUIDELINE = 100 (F2)	
JAN	41.800	41.800	42.000	42.200	43.400	42.800
FEB	40.800	39.800	39.800	40.400	41.200	40.000
MAR	39.200	38.200	39.800	39.400	40.000	39.800
APR	35.600	35.800	35.200	36.400	35.600	37.200
MAY	36.200	35.800	36.800	36.400	37.000	35.400
JUN	35.800	36.600	IIS	35.200	36.400	36.600
JUL	36.600	37.200	38.000	36.200	36.600	37.400
AUG	38.400	38.200	.	.	38.800	39.200
SEP	37.200	38.000	38.000	37.400	37.600	37.400
OCT	37.400	38.000	38.200	39.400	37.800	38.000
NOV	38.800	39.400	39.800	39.600	39.600	39.000
DEC	43.000	42.200	42.600	42.000	42.000	42.200
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250 (A3)	
JAN	16.000	16.900	17.400	16.900	16.900	16.900
FEB	16.900	17.700	17.800	17.800	18.000	17.900
MAR	15.800	17.200	16.700	16.600	16.600	16.800
APR	15.900	17.000	16.700	16.500	16.900	16.700
MAY	15.600	17.000	16.800	16.100	16.700	16.700
JUN	15.300	16.000	16.400	16.000	16.600	16.500
JUL	15.300	16.600	16.700	16.700	16.700	16.800
AUG	16.000	17.200	.	.	17.200	17.200
SEP	16.000	17.200	17.500	17.300	17.500	17.500
OCT	15.100	16.800	16.500	16.400	16.300	16.200
NOV	16.000	17.200	17.000	16.900	16.900	16.900
DEC	15.800	17.000	16.900	16.700	16.800	16.700

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
COLOUR (HZU)			DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)	
JAN	2.500	1.000 <T	2.500	2.500	1.500 <T	1.500 <T
FEB	3.000	1.500 <T	3.000	2.500	1.500 <T	1.500 <T
MAR	2.500	BDL	1.500 <T	2.500	1.500 <T	1.500 <T
APR	2.500	.500 <T	1.500 <T	2.000 <T	1.000 <T	1.000 <T
MAY	2.500	1.000 <T	2.000 <T	2.500	2.000 <T	2.000 <T
JUN	2.000 <T	1.000 <T	1.500 <T	2.000 <T	1.500 <T	1.500 <T
JUL	2.500	.500 <T	1.500 <T	2.000 <T	1.000 <T	1.500 <T
AUG	2.000 <T	.500 <T	.	.	1.000 <T	1.500 <T
SEP	2.500	1.000 <T	1.000 <T	1.500 <T	.500 <T	1.000 <T
OCT	2.000 <T	1.000 <T	1.500 <T	2.000 <T	1.500 <T	1.500 <T
NOV	2.000 <T	.500 <T	1.000 <T	1.000 <T	1.000 <T	1.000 <T
DEC	2.500	.500 <T	1.000 <T	1.500 <T	1.000 <T	1.000 <T
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1		GUIDELINE = 400 (F2)	
JAN	319	313	324	320	327	326
FEB	319	320	322	323	323	323
MAR	304	304	303	300	302	303
APR	295	301	296	294	294	290
MAY	303	306	309	305	309	309
JUN	299	304	115	304	303	305
JUL	289	295	297	293	294	295
AUG	300	302	.	.	304	301
SEP	297	300	303	300	302	302
OCT	296	300	304	301	299	299
NOV	309	313	315	313	312	313
DEC	310	315	317	316	315	316
FLUORIDE (MG/L)			DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)	
JAN	.100	.100	.120	.100	.120	.100
FEB	.120	.100	.120	.100	.120	.120
MAR	.100	.110	.110	.100	.110	.110
APR	.080	.100	.100	.110	.100	.110
MAY	.120	.110	.120	.120	.120	.120
JUN	.120	.120	.120	.110	.110	.110
JUL	.110	.110	.100	.100	.100	.110
AUG	.130	.120	.	.	.120	.120
SEP	.120	.120	.120	.120	.120	.120
OCT	.120	.120	.120	.120	.120	.120
NOV	.100	.100	.100	.100	.120	.100
DEC	.120	.120	.120	.100	.100	.120
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	143.000	143.000	143.000	143.000	146.000	145.000
FEB	139.000	136.000	137.000	138.000	139.000	137.000
MAR	135.000	132.000	137.000	136.000	138.000	137.000
APR	123.000	123.000	122.000	125.000	122.000	127.000
MAY	125.000	123.000	126.000	125.000	126.000	121.000
JUN	122.000	125.000	118	121.000	124.000	125.000
JUL	126.000	127.000	128.000	125.000	125.000	127.000
AUG	132.000	131.000	.	.	134.000	134.000
SEP	130.000	132.000	131.000	129.000	130.000	130.000
OCT	128.000	129.000	131.000	133.000	130.000	130.000
NOV	132.000	135.000	135.000	135.000	134.000	134.000
DEC	148.000	144.000	145.000	143.000	143.000	144.000
IONCAL (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
FEB	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
MAR	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
APR	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
MAY	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
JUN	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF	.000 NAF
JUL	1.769	2.282	2.314	4.354	3.504	2.557
AUG	1.775	.654	.	.	1.317	2.849
SEP	.524	.039	1.604	2.839	2.054	1.649
OCT	4.272	3.895	4.202	1.972	3.714	3.827
NOV	4.287	1.091	3.367	.924	1.224	1.720
DEC	3.704	.750	.678	1.802	.631	1.407
LANGELIERS INDEX (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.485 NAF	.311 NAF	.340 NAF	.358 NAF	.350 NAF	.332 NAF
FEB	.375 NAF	.239 NAF	.268 NAF	.268 NAF	.205 NAF	.150 NAF
MAR	.452 NAF	.220 NAF	.403 NAF	.295 NAF	.305 NAF	.281 NAF
APR	.406 NAF	.290 NAF	.297 NAF	.310 NAF	.342 NAF	.308 NAF
MAY	.402 NAF	.307 NAF	.269 NAF	.275 NAF	.355 NAF	.263 NAF
JUN	.528 NAF	.365 NAF	.	.340 NAF	.363 NAF	.388 NAF
JUL	.375	.212	.175	.241	.155	.216
AUG	.416	.411	.	.	.390	.391
SEP	.416	.263	.279	.262	.264	.262
OCT	.492	.347	.379	.417	.368	.381
NOV	.392	.228	.275	.159	.231	.206
DEC	.509	.370	.405	.389	.372	.376
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30 (F2)	
JAN	9.300	9.500	9.400	9.200	9.200	9.300

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	9.000	8.900	9.200	9.000	8.700	9.000
MAR	9.100	8.850	9.150	9.100	9.200	9.050
APR	8.200	8.200	8.200	8.200	8.000	8.400
MAY	8.400	8.200	8.200	8.300	8.200	7.900
JUN	7.900	8.200	IIS	8.100	8.000	8.200
JUL	8.400	8.300	8.100	8.300	8.200	8.100
AUG	8.700	8.700	.	.	8.900	8.800
SEP	9.000	8.900	8.700	8.600	8.800	8.900
OCT	8.400	8.400	8.600	8.400	8.600	8.500
NOV	8.500	9.000	8.700	8.800	8.600	8.900
DEC	9.800	9.300	9.400	9.200	9.200	9.300
SODIUM (MG/L)			DET'N LIMIT = .200		GUIDELINE = 200 (C3)	
JAN	9.800	9.200	9.800	9.600	9.200	9.400
FEB	10.200	10.400	10.400	10.600	10.400	10.400
MAR	10.000	10.000	10.200	9.800	10.000	10.000
APR	9.400	9.600	9.600	9.600	9.400	9.600
MAY	9.400	9.200	9.400	9.400	9.400	9.000
JUN	8.600	8.600	IIS	8.800	8.600	8.800
JUL	8.600	8.600	8.800	8.800	9.000	8.800
AUG	9.600	9.400	.	.	9.200	9.400
SEP	9.200	9.200	9.400	9.200	9.400	9.400
OCT	8.800	8.800	8.800	8.600	8.800	8.600
NOV	8.800	9.400	9.600	9.600	9.600	9.400
DEC	9.200	8.600	8.800	8.400	9.200	8.800
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
JAN	.016	.010	.010	.012	.014	.012
FEB	.028	.008 <T	.004 <T	.004 <T	.006 <T	.006 <T
MAR	.032	.022	.010	.006 <T	.014	.028
APR	.024	.008 <T	.012	.010	.012	.010
MAY	.048	.016	.018	.018	.018	.018
JUN	.044	.012	IIS	.012	.012	.010
JUL	.030	.004 <T	.004 <T	.006 <T	.004 <T	.004 <T
AUG	.030	.002 <T	.	.	.006 <T	.002 <T
SEP	.014	.010	.014	.012	.012	.018
OCT	.028	.006	.002	.004	.004	.002
NOV	.014	.008 <T	.004 <T	.006 <T	.010	.006 <T
DEC	.016	.010	.008 <T	.010	.010	.010
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	.009	BDL	.001 <T	.001 <T	.001 <T	.001 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.007	.001 <T	.002 <T	.001 <T	.001 <T	.001 <T
MAR	.014	.010	.007	.001 <T	.006	.015
APR	.003 <T	BDL	.001 <T	.001 <T	.001 <T	.001 <T
MAY	.005	.001 <T	.002 <T	.002 <T	.002 <T	.002 <T
JUN	.008	.001 <T	IIS	.001 <T	.001 <T	.001 <T
JUL	.005	.001 <T	.002 <T	.002 <T	.002 <T	.002 <T
AUG	.005	.002 <T	.	.	.003 <T	.002 <T
SEP	.006	.003 <T	.003 <T	.003 <T	.003 <T	.003 <T
OCT	.005	.002 <T	.006	.002 <T	.006	.002 <T
NOV	.008	.003 <T	.004 <T	.004 <T	.005	.004 <T
DEC	.007	.003 <T	.004 <T	.004 <T	.004 <T	.004 <T
TOTAL NITRATES (MG/L)		DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)		
JAN	.320	.370	.335	.320	.330	.315
FEB	.310	.310	.315	.310	.320	.310
MAR	.215	.215	.230	.205	.215	.220
APR	.230	.230	.245	.235	.235	.225
MAY	.120	.120	.140	.125	.140	.130
JUN	.150	.145	IIS	.170	.165	.155
JUL	.145	.145	.185	.160	.170	.170
AUG	.080 <T	.080 <T	.	.	.100	.095 <T
SEP	.070 <T	.070 <T	.095 <T	.075 <T	.085 <T	.070 <T
OCT	.080 <T	.085 <T	.130	.090 <T	.100	.085 <T
NOV	.225	.220	.235	.220	.230	.220
DEC	.295	.280	.310	.290	.310	.300
NITROGEN TOT KJELD (MG/L)		DET'N LIMIT = .020		GUIDELINE = N/A		
JAN	.260	.170	.170	.160	.150	.170
FEB	.230	.180	.180	.200	.210	.240
MAR	.190	.140	IIS	.150	.210	.150
APR	.230	.160	.310	.160	.200	.170
MAY	.220	.170	.170	.180	IIS	.160
JUN	.250	.170	IIS	.170	.160	.180
JUL	.270	.180	.160	.160	.150	.160
AUG	.250	.230	.	.	.210	.180
SEP	.280	.200	.220	.190	.190	.190
OCT	.230	.160	.180	.150	.150	.150
NOV	.240	.180	.150	.150	.160	.160
DEC	.260	.210	.200	.200	.180	.210
PH (DIMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)		
JAN	8.270	8.120	8.150	8.170	8.140	8.130

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	8.180	8.070	8.100	8.090	8.020	7.980
MAR	8.280	8.080	8.240	8.140	8.140	8.120
APR	8.280	8.180	8.200	8.200	8.240	8.210
MAY	8.260	8.190	8.130	8.150	8.220	8.150
JUN	8.400	8.250	11S	8.240	8.250	8.270
JUL	8.250	8.100	8.050	8.140	8.050	8.100
AUG	8.270	8.290	.	.	8.260	8.260
SEP	8.290	8.140	8.150	8.140	8.140	8.140
OCT	8.340	8.210	8.230	8.260	8.230	8.240
NOV	8.220	8.070	8.100	8.000	8.070	8.050
DEC	8.280	8.170	8.200	8.190	8.170	8.170
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = .0005		GUIDELINE = N/A		
JAN	.003	.000 <T	.	.	.	.
FEB	.004	.000 <T	.	.	.	.
MAR	.001 <T	.001 <T	.	.	.	.
APR	.003	.000 <T	.	.	.	.
MAY	.003	.002 <T	.	.	.	.
JUN	.005	.001 <T	.	.	.	.
JUL	.001 <T	.000 <T	.	.	.	.
AUG	.001 <T	.001 <T	.	.	.	.
SEP	.003	BDL	.	.	.	.
OCT	.000 <T	BDL	.	.	.	.
NOV	.004	.001 <T	.	.	.	.
DEC	.003	.000 <T	.	.	.	.
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002		GUIDELINE = .40 (F2)		
JAN	.018	.004 <T	.	.	.	.
FEB	.012	BDL	.	.	.	.
MAR	.007 <T	.003 <T	.	.	.	.
APR	.014	.002 <T	.	.	.	.
MAY	.015	.002 <T	.	.	.	.
JUN	.016	BDL	.	.	.	.
JUL	.013	.006 <T	.	.	.	.
AUG	.011	.002	.	.	.	.
SEP	.009 <T	.002 <T	.	.	.	.
OCT	.011	.004 <T	.	.	.	.
NOV	.008 <T	BDL	.	.	.	.
DEC	.014	.003 <T	.	.	.	.
SULPHATE ( )		DET'N LIMIT = .200		GUIDELINE = 500. (A3)		
JUL	24.930	28.720	29.120	29.370	29.280	28.570

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
AUG	25.910	29.600	.	.	29.720	29.470
SEP	26.700	29.800	29.700	29.800	30.000	29.400
OCT	26.800	29.900	29.400	29.700	30.100	29.900
NOV	26.880	30.060	30.890	30.710	29.850	29.450
DEC	28.000	33.000	34.500	33.500	32.500	29.170
TURBIDITY (FTU)			DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)	
JAN	11.900	.260	.480	.250	.180	.160
FEB	4.400	.200	.550	.390	.540	.400
MAR	2.400	.130	.600	.320	.290	.170
APR	5.200	.140	.200	.320	.200	.110
MAY	6.300	.240	.320	.280	.270	.640
JUN	8.100	.220	115	.360	.170	.640
JUL	4.000	.530	.420	.560	.460	.530
AUG	3.500	.480	.	.	.530	.680
SEP	8.400	.750	.610	.710	.930	.730
OCT	6.500	.850	.940	.950	.730	.560
NOV	5.400	.350	.450	.510	.390	.560
DEC	14.000	.430	.310	.500	.370	.360

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
METALS						
SILVER (UG/L)			DET'N LIMIT = .020		GUIDELINE = 50. (A1)	
JAN	.020 <T	.020 <T	BDL	BDL	.020 <T	BDL
FEB	.020 <T	.020 <T	BDL	BDL	.020 <T	.020 <T
MAR	BDL	BDL	BDL	BDL	BDL	.060 <T
APR	.030 <T	.040 <T	.030 <T	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	.050 <T	BDL	.030 <T	.050 <T	.080 <T	BDL
JUL	.220 <T	.130 <T	.090 <T	.080 <T	.070 <T	.040 <T
AUG	BDL	.060 <T	.	.	BDL	BDL
SEP	BDL	BDL	BDL	.080 <T	.040 <T	.040 <T
OCT	BDL	.190 <T	.060 <T	BDL	BDL	BDL
NOV	.030 <T	.040 <T	.030 <T	BDL	.030 <T	.040 <T
DEC	BDL	BDL	BDL	BDL	BDL	BDL
ALUMINUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 100.(A4)	
JAN	162.400	78.880	61.480	52.200	64.960	47.560
FEB	105.560	76.560	71.920	71.920	73.080	63.800
MAR	63.800	98.600	87.000	88.160	127.600	87.000
APR	93.960	91.640	64.960	73.080	88.160	76.560
MAY	95.120	243.600	162.400	197.200	220.400	185.600
JUN	162.400	243.600	150.800	197.200	232.000	208.800
JUL	89.320	290.000	162.400	208.800	185.600	185.600
AUG	116.000	348.000	.	.	185.600	232.000
SEP	83.520	266.800	150.800	197.200	208.800	197.200
OCT	127.600	197.200	116.000	150.800	150.800	150.800
NOV	91.640	10.440	74.240	75.400	112.520	91.640
DEC	150.800	100.920	71.920	71.920	77.720	77.720
ARSENIC (UG/L)			DET'N LIMIT = 0.050		GUIDELINE = 50.0 (A1)	
JAN	.620 <T	.360 <T	.260 <T	.150 <T	.260 <T	.320 <T
FEB	.550 <T	.250 <T	.240 <T	.250 <T	.240 <T	.200 <T
MAR	.510 <T	.320 <T	.230 <T	.320 <T	.250 <T	.160 <T
APR	.860 <T	.630 <T	.630 <T	.770 <T	.740 <T	.640 <T
MAY	.570 <T	.500 <T	.460 <T	.480 <T	.410 <T	.390 <T
JUN	.850 <T	.610 <T	.470 <T	.670 <T	.660 <T	.480 <T
JUL	1.200	.540 <T	.400 <T	.620 <T	.240 <T	.320 <T
AUG	1.000 <T	.810 <T	.	.	.370 <T	.400 <T
SEP	.820 <T	.620 <T	.590 <T	.740 <T	.700 <T	.700 <T
OCT	.740 <T	.910 <T	.770 <T	.700 <T	.740 <T	.700 <T
NOV	.830 <T	BDL	.170 <T	.190 <T	.590 <T	.580 <T
DEC	.910 <T	.400 <T	.280 <T	.580 <T	.260 <T	.340 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BARIUM (UG/L)			DET'N LIMIT = 0.020		GUIDELINE = 1000. (A1)	
JAN	21.000	22.000	22.000	19.000 <T	24.000	20.000
FEB	22.000	21.000	20.000	20.000	22.000	20.000
MAR	20.000	18.000	21.000	18.000	20.000	19.000
APR	21.000	20.000	21.000	19.000	20.000	20.000
MAY	21.000	21.000	23.000	20.000	22.000	20.000
JUN	24.000	23.000	28.000	23.000	24.000	23.000
JUL	23.000	22.000	25.000	23.000	23.000	23.000
AUG	24.000	23.000	.	.	23.000	24.000
SEP	23.000	23.000	24.000	23.000	23.000	23.000
OCT	24.000	24.000	25.000	24.000	23.000	23.000
NOV	23.000	4.700	24.000	22.000	24.000	23.000
DEC	26.000	24.000	25.000	23.000	23.000	23.000
BORON (UG/L)			DET'N LIMIT = 0.200		GUIDELINE = 5000. (A1)	
JAN	26.000	25.000	24.000	23.000	27.000	24.000
FEB	22.000	23.000	22.000	22.000	22.000	23.000
MAR	22.000	24.000	24.000	22.000	22.000	22.000
APR	21.000	22.000	22.000	22.000	21.000	22.000
MAY	22.000	21.000	37.000	21.000	20.000 <T	20.000 <T
JUN	70.000	29.000	27.000	26.000	26.000	24.000
JUL	22.000	23.000	23.000	24.000	21.000	22.000
AUG	44.000	30.000	.	.	25.000	27.000
SEP	31.000	60.000	31.000	52.000	51.000	55.000
OCT	36.000	43.000	41.000	40.000	39.000	42.000
NOV	86.000	23.000	29.000	58.000	68.000	81.000
DEC	56.000	25.000	34.000	59.000	29.000	32.000
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010		GUIDELINE = .20 (H)	
JAN	.020 <T	BDL	.010 <T	BDL	.010 <T	.010 <T
FEB	.030 <T	.020 <T	.020 <T	.030 <T	.020 <T	.020 <T
MAR	.020 <T	BDL	BDL	BDL	.010 <T	BDL
APR	BDL	BDL	.020 <T	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	.070 <T	.020 <T	BDL	BDL	BDL	BDL
AUG	.020 <T	BDL	.	.	BDL	BDL
SEP	.090 <T	.080 <T	.090 <T	.050 <T	.050 <T	.080 <T
OCT	BDL	.080 <T	.170 <T	.110 <T	.180 <T	.040 <T
NOV	.160 <T	BDL	.050 <T	.080 <T	.180 <T	.210 <T
DEC	.050 <T	BDL	.070 <T	.030 <T	.050 <T	BDL
CADMIUM (UG/L)			DET'N LIMIT = 0.050		GUIDELINE = 5.000 (A1)	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	BDL	.050 <T	.050 <T	.050 <T	.060 <T	.050 <T
FEB	BDL	BDL	.060 <T	BDL	.090 <T	.070 <T
MAR	BDL	BDL	BDL	BDL	.050 <T	.050 <T
APR	BDL	BDL	BDL	BDL	.070 <T	BDL
MAY	BDL	BDL	BDL	BDL	.070 <T	BDL
JUN	BDL	BDL	.110 <T	.100 <T	.110 <T	BDL
JUL	BDL	.060 <T	BDL	BDL	BDL	BDL
AUG	BDL	BDL	.	.	.070 <T	.060 <T
SEP	BDL	BDL	BDL	.060 <T	.100 <T	.120 <T
OCT	BDL	BDL	.060 <T	BDL	.060 <T	BDL
NOV	.090 <T	BDL	BDL	BDL	.130 <T	.110 <T
DEC	.060 <T	BDL	BDL	BDL	.080 <T	.130 <T
COBALT (UG/L)			DET'N LIMIT = 0.020		GUIDELINE = 1000 (N)	
JAN	.310 <T	1.400	.140 <T	.190 <T	.260 <T	.200 <T
FEB	.110 <T	.040 <T	.050 <T	.060 <T	BDL	.100 <T
MAR	.190 <T	.150 <T	.170 <T	.150 <T	.290 <T	.250 <T
APR	.170 <T	.080 <T	.130 <T	.100 <T	.110 <T	.080 <T
MAY	.280 <T	.150 <T	.120 <T	.110 <T	.190 <T	.130 <T
JUN	.180 <T	.060 <T	.150 <T	.130 <T	.340 <T	.040 <T
JUL	.160 <T	.030 <T	.060 <T	.050 <T	.050 <T	BDL
AUG	.200 <T	.430 <T	.	.	.110 <T	.070 <T
SEP	.250 <T	.170 <T	.130 <T	.250 <T	.200 <T	.100 <T
OCT	.230 <T	.220 <T	.130 <T	.500 <T	.170 <T	.130 <T
NOV	.220 <T	.030 <T	.530 <T	.250 <T	.180 <T	.170 <T
DEC	.290 <T	1.200	.150 <T	.160 <T	.150 <T	.140 <T
CHROMIUM (UG/L)			DET'N LIMIT = 0.100		GUIDELINE = 50. (A1)	
JAN	.900 <T	.460 <T	.270 <T	.170 <T	.240 <T	.690 <T
FEB	.330 <T	.270 <T	.180 <T	.200 <T	.250 <T	.330 <T
MAR	.300 <T	.350 <T	.350 <T	.310 <T	.350 <T	.280 <T
APR	.300 <T	.350 <T	.140 <T	.190 <T	.370 <T	.290 <T
MAY	.770 <T	.220 <T	3.000	.170 <T	.190 <T	.280 <T
JUN	5.200	.550 <T	BDL	.390 <T	.510 <T	.330 <T
JUL	.220 <T	.140 <T	BDL	BDL	.160 <T	.160 <T
AUG	3.400	.790 <T	.	.	.240 <T	.480 <T
SEP	1.400	4.000	1.100	3.900	3.800	4.000
OCT	6.500	5.800	5.700	5.300	5.300	6.300
NOV	7.100	.290 <T	.660 <T	3.700	5.000	6.200
DEC	4.500	.280 <T	1.100	4.400	.720 <T	1.000 <T
COPPER (UG/L)			DET'N LIMIT = .100		GUIDELINE = 1000 (A3)	
JAN	2.600	1.000	15.000	2.210	9.600	1.700

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	3.800	1.500	13.000	2.200	5.600	2.900
MAR	2.000	.710 <T	9.900	1.800	16.000	1.900
APR	3.600	.980 <T	11.000	2.300	25.000	1.600
MAY	6.500	1.100	11.000	2.100	4.500	5.100
JUN	3.800	1.100	21.000	3.100	6.000	2.000
JUL	3.800	.830 <T	14.000	2.500	5.000	6.700
AUG	4.700	.870 <T	.	.	4.200	2.100
SEP	14.000	.970 <T	14.000	2.400	27.000	1.900
OCT	3.800	1.200	15.000	2.300	36.000	2.100
NOV	5.100	9.900	13.000	2.100	33.000	1.700
DEC	23.000	1.000 <T	14.000	2.800	9.900	1.700
IRON (UG/L)		DET'N LIMIT = 4.000		GUIDELINE = 300. (A3)		
JAN	230.000	17.000 <T	74.000	84.000	29.000 <T	40.000
FEB	110.000	10.000 <T	98.000	93.000	34.000 <T	38.000 <T
MAR	62.000	7.400 <T	63.000	80.000	25.000 <T	37.000 <T
APR	140.000	8.800 <T	71.000	86.000	31.000 <T	37.000 <T
MAY	140.000	8.200 <T	49.000 <T	74.000	33.000 <T	48.000 <T
JUN	220.000	17.000 <T	43.000 <T	72.000	52.000	29.000 <T
JUL	140.000	BDL	39.000 <T	61.000	25.000 <T	38.000 <T
AUG	180.000	5.200 <T	.	.	19.000 <T	26.000 <T
SEP	140.000	6.300 <T	39.000 <T	52.000	20.000 <T	45.000 <T
OCT	110.000	6.300 <T	33.000 <T	50.000 <T	16.000 <T	20.000 <T
NOV	130.000	BDL	29.000 <T	38.000 <T	15.000 <T	34.000 <T
DEC	180.000	BDL	30.000 <T	48.000 <T	32.000 <T	37.000 <T
MERCURY (UG/L)		DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)		
JAN	.030	.020	.	.050	.	BDL
FEB	.020	.020	.	.040	.	BDL
MAR	.	.020	.	.040	.	BDL
APR	.020	.030	.	.070	.	.010
MAY	BDL	.170	.	.060	.	BDL
JUN	.040 <T	.020 <T	.	.100	.	BDL
JUL	.050 <T	.050 <T	.	.090	.	BDL
AUG	BDL	.040 <T	.	.	.	BDL
SEP	.060	.060	.	.060	.	.020 <T
OCT	.040 <T	.050 <T	.	.090	.	BDL
NOV	.060	.060	.	.090	.	BDL
DEC	.070	.070	.	.130	.	.040 <T
MANGANESE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 50.0 (A3)		
JAN	8.100	2.700	4.900	4.200	2.400	2.500

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

SITE TYPE	WATER TREATMENT PLANT RAW	WATER TREATMENT PLANT TREATED	DISTRIBUTION SYSTEM SITE 1 STANDING	DISTRIBUTION SYSTEM SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	DISTRIBUTION SYSTEM SITE 2 FREE FLOW
FEB	5.500	1.500	4.600	4.500	2.500	2.600
MAR	3.600	.710	3.700	3.600	2.200	2.300
APR	7.000	.650	3.900	3.800	2.300	2.100
MAY	10.000	2.200	3.800	4.700	3.300	3.900
JUN	12.000	1.300	3.500	4.000	3.000	2.600
JUL	9.800	1.500	3.800	4.400	2.100	2.400
AUG	11.000	1.500	.	.	1.100	1.800
SEP	8.700	1.200	4.100	4.400	2.800	2.400
OCT	7.800	1.000	3.500	3.400	2.300	2.100
NOV	8.900	.120 <T	3.600	3.300	2.800	2.600
DEC	9.200	1.700	3.100	3.500	1.800	2.200
MOLYBDENUM (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 500 (H)		
JAN	1.000	1.200	1.100	1.020	1.100	1.000
FEB	1.000	1.200	.980	1.100	1.100	1.100
MAR	1.100	1.200	1.100	1.200	1.100	1.100
APR	1.100	1.200	1.100	1.100	1.200	1.100
MAY	1.100	1.200	1.200	1.200	1.200	1.200
JUN	1.200	1.400	1.400	1.300	1.200	1.300
JUL	1.000	1.200	1.100	1.200	1.100	1.000
AUG	1.100	1.200	.	.	1.100	1.100
SEP	.970	1.200	1.100	1.200	1.200	1.200
OCT	1.100	1.200	1.200	1.300	1.200	1.200
NOV	1.000	1.200	1.100	1.100	1.200	1.200
DEC	1.200	1.100	1.200	1.400	1.400	1.300
NICKEL (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 50. (F3)		
JAN	2.100	2.000	2.500	2.140	3.000	2.000
FEB	.890 <T	.720 <T	1.100 <T	.520 <T	.800 <T	.970 <T
MAR	1.100 <T	.860 <T	1.800	1.000 <T	110.000	1.100 <T
APR	1.800	1.500	1.800	1.700	1.900	1.500
MAY	1.400 <T	.740 <T	1.400 <T	.670 <T	1.200 <T	1.600 <T
JUN	.730 <T	.470 <T	.720 <T	.610 <T	.300 <T	.330 <T
JUL	1.700 <T	1.200 <T	.500 <T	.810 <T	.770 <T	.670 <T
AUG	.770 <T	BDL	.	.	.190 <T	BDL
SEP	1.300 <T	1.400 <T	3.000	.880 <T	7.200	.660 <T
OCT	1.100 <T	1.100 <T	1.600 <T	.600 <T	4.600	.680 <T
NOV	1.700 <T	.200 <T	1.200 <T	1.100 <T	3.600	.640 <T
DEC	1.600 <T	1.300 <T	1.800 <T	1.700 <T	2.100	1.800 <T
LEAD (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = 50. (A1)		
JAN	.750	.450	.700	.050 <T	.600	.100 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEV WSS) 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.170 <T	.020 <T	.800	.060 <T	.550	.210
MAR	.100 <T	.470	.460	.390	.710	.160 <T
APR	.280	.820	.430	.050 <T	1.500	.130 <T
MAY	.600	.500	.430	.060 <T	.670	.410
JUN	.340	.280	.870	.270	.960	.260
JUL	.400	.730	.750	.070 <T	.830	.580
AUG	.560	.770	.	.	.710	.340
SEP	.430	.540	.580	.130 <T	2.500	.260
OCT	.220	.580	.670	.070 <T	2.800	.200 <T
NOV	.400	.130 <T	.780	.110 <T	2.600	.210
DEC	.420	.390	.540	.080 <T	.650	.200 <T
ANTIMONY (UG/L)			DET'N LIMIT = .050		GUIDELINE = 146. (D4)	
JAN	.200	.190 <T	.180 <T	.150 <T	.230	.210
FEB	.170 <T	.180 <T	.200	.190 <T	.190 <T	.170 <T
MAR	.210	.210	.190 <T	.170 <T	.200	.170 <T
APR	.210	.200 <T	.190 <T	.160 <T	.190 <T	.210
MAY	.230	.260	.240	.200 <T	.220	.140 <T
JUN	.260	.280	.330	.150 <T	.220	.170 <T
JUL	.300	.260	.230	.250	.220	.190 <T
AUG	.540	1.100	.	.	.510	.580
SEP	.540	.670	.380	.880	.860	.690
OCT	.450	.660	.690	1.000	.750	.630
NOV	.450	.740	1.200	.760	.540	.600
DEC	.350	2.200	.450	.410	.420	.420
SELENIUM (UG/L)			DET'N LIMIT = 0.200		GUIDELINE = 10. (A1)	
JAN	.410 <T	.600 <T	.920 <T	.970 <T	1.400 <T	.610 <T
FEB	.390 <T	1.000 <T	.800 <T	1.200 <T	.880 <T	1.100 <T
MAR	.510 <T	.950 <T	.990 <T	.890 <T	.750 <T	1.100 <T
APR	.510 <T	1.500 <T	1.300 <T	1.000 <T	1.500 <T	.870 <T
MAY	.720 <T	3.000 <T	1.600 <T	2.400 <T	1.200 <T	2.400 <T
JUN	4.100 <T	4.600 <T	4.200 <T	1.500 <T	1.200 <T	1.500 <T
JUL	BDL	1.300 <T	2.100 <T	BDL	BDL	3.000 <T
AUG	BDL	2.100 <T	.	.	2.100 <T	2.100 <T
SEP	BDL	1.400 <T	1.200 <T	1.700 <T	2.000 <T	1.500 <T
OCT	1.900 <T	3.100 <T	3.300 <T	3.700 <T	3.200 <T	4.100 <T
NOV	.750 <T	.340 <T	2.300 <T	2.200 <T	3.100 <T	4.000 <T
DEC	1.100 <T	1.700 <T	1.700 <T	1.700 <T	.850 <T	1.100 <T
STRONTIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 2000.(H)	
JAN	180.000	200.000	180.000	182.000	200.000	180.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	190.000	190.000	190.000	190.000	190.000	190.000
MAR	180.000	180.000	180.000	170.000	180.000	170.000
APR	180.000	180.000	180.000	180.000	190.000	180.000
MAY	180.000	180.000	200.000	180.000	190.000	180.000
JUN	190.000	180.000	200.000	180.000	180.000	180.000
JUL	160.000	160.000	170.000	160.000	160.000	160.000
AUG	180.000	160.000	.	.	160.000	170.000
SEP	180.000	180.000	190.000	180.000	180.000	180.000
OCT	150.000	170.000	180.000	180.000	170.000	170.000
NOV	180.000	74.000	190.000	180.000	190.000	180.000
DEC	200.000	190.000	200.000	200.000	190.000	190.000
TITANIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = N/A	
JAN	9.200	4.300	4.500	3.970	4.700	4.000
FEB	7.800	4.300	4.400	4.600	4.500	4.500
MAR	4.800	1.800	1.700	1.900	1.800	2.100
APR	5.700	1.900	2.200	2.100	2.000	2.100
MAY	6.000	3.300	3.000	3.100	3.000	2.700
JUN	12.000	3.400	3.700	4.100	4.200	4.300
JUL	4.200	1.300 <T	.900 <T	1.200 <T	.850 <T	1.100 <T
AUG	6.500	4.000	.	.	3.800	3.500
SEP	6.700	4.600	5.000	3.400	3.300	3.400
OCT	8.800	2.800	3.300	2.900	2.800	3.400
NOV	6.600	.790 <T	3.200	3.300	3.400	3.300
DEC	7.400	3.400	3.300	3.200	3.400	3.300
THALLIUM (UG/L)			DET'N LIMIT = .010		GUIDELINE = 13. (D4)	
JAN	.020 <T	.010 <T	BDL	.010 <T	.010 <T	.020 <T
FEB	.010 <T	BDL	.010 <T	.010 <T	.030 <T	.030 <T
MAR	.020 <T	.010 <T	.020 <T	.010 <T	.010 <T	BDL
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	.060 <T	.030 <T	.070 <T
JUL	.020 <T	.040 <T	.030 <T	BDL	.050 <T	.020 <T
AUG	BDL	BDL	.	.	BDL	BDL
SEP	BDL	BDL	BDL	BDL	.020 <T	BDL
OCT	BDL	.040 <T	.020 <T	.030 <T	BDL	BDL
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	.030 <T	.020 <T	.030 <T	.020 <T	.030 <T	BDL
URANIUM (UG/L)			DET'N LIMIT = .020		GUIDELINE = 20. (A2)	
JAN	.390	.330	.330	BDL	.330	.320

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEV WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.390	.400	.360	.360	.400	.380
MAR	.310	.300	.360	.330	.360	.350
APR	.360	.360	.290	.260	.340	.280
MAY	.370	.360	.370	.390	.370	.380
JUN	.460	.410	.420	.380	.390	.360
JUL	.390	.350	.370	.350	.320	.330
AUG	.370	.370	.	.	.290	.330
SEP	.370	.320	.320	.440	.400	.340
OCT	.350	.400	.350	.310	.400	.440
NOV	.340	.300	.290	.300	.350	.360
DEC	.380	.350	.320	.290	.370	.350
VANADIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 100 (N)	
JAN	.500	.480	.400	.320 <T	.440	.360 <T
FEB	.330 <T	.270 <T	.280 <T	.270 <T	.310 <T	.270 <T
MAR	.290 <T	.340 <T	.280 <T	.250 <T	.350 <T	.260 <T
APR	.360 <T	.350 <T	.330 <T	.310 <T	.360 <T	.290 <T
MAY	.340 <T	.390 <T	.350 <T	.340 <T	.420 <T	.360 <T
JUN	.470 <T	.520	.480 <T	.390 <T	.490 <T	.370 <T
JUL	.500 <T	.550	.510	.500 <T	.500 <T	.510
AUG	.450 <T	.600	.	.	.480 <T	.510
SEP	.400 <T	.520	.480 <T	.490 <T	.560	.550
OCT	.460 <T	.660	.540	.430 <T	.420 <T	.460 <T
NOV	.350 <T	.290 <T	.360 <T	.350 <T	.430 <T	.350 <T
DEC	.500 <T	.490 <T	.460 <T	.480 <T	.400 <T	.410 <T
ZINC (UG/L)			DET'N LIMIT = .001		GUIDELINE = 5000. (A3)	
JAN	8.000	3.900	6.800	1.110	8.900	1.300
FEB	4.600	1.300	6.400	1.500	6.400	3.500
MAR	1.900	1.200	4.600	1.200	13.000	1.600
APR	3.700	1.100	5.300	1.300	12.000	2.100
MAY	6.500	1.400	8.600	1.800	6.900	6.400
JUN	3.300	1.100	11.000	4.200	10.000	1.500
JUL	2.700	2.100	7.500	2.000	6.400	6.400
AUG	3.500	1.100	.	.	4.600	1.700
SEP	5.500	1.300	11.000	1.700	51.000	4.600
OCT	4.700	.950 <T	11.000	1.000 <T	54.000	1.900
NOV	7.000	1.000 <T	7.000	1.600	49.000	1.700
DEC	6.400	1.100	8.100	1.600	8.600	1.400

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB						
ALPHA BHC (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 700 (G)		
JAN	2.000 <T	2.000 <T	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	1.000 <T	BDL	.	BDL	.	1.000 <T
APR	2.000 <T	2.000 <T	.	INR	.	3.000 <T
MAY	2.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T
JUN	BDL	BDL	.	BDL	.	BDL
JUL	1.000 <T	1.000 <T	.	2.000 <T	.	1.000 <T
AUG	BDL	1.000 <T	.	.	.	1.000 <T
SEP	2.000 <T	BDL	.	BDL	.	BDL
OCT	BDL	1.000 <T	.	BDL	.	BDL
NOV	1.000 <T	1.000 <T	.	BDL	.	2.000 <T
DEC	BDL	BDL	.	BDL	.	BDL
LINDANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 4000 (A1)		
JAN	2.000 <T	2.000 <T	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	1.000 <T	.	INR	.	2.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	1.000 <T	BDL	.	BDL	.	BDL
OCT	BDL	2.000 <T	.	BDL	.	BDL
NOV	BDL	10.000 <T	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
ATRAZINE (NG/L)		DET'N LIMIT = 50.00		GUIDELINE = 60000 (B3)		
JAN	BDL	ISM	.	50.000 <T	.	80.000 <T
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	ILA	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEV WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS (UG/L)	PHENOLICS		DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
JAN	.600 <T	.600 <T	.	.	.	.
FEB	.600 <T	.600 <T	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	.600 <T	.600 <T	.	.	.	.
MAY	.200 <T	BDL	.	.	.	.
JUN	1.600	1.600	.	.	.	.
JUL	1.400	1.400	.	.	.	.
AUG	2.400	1.400	.	.	.	.
SEP	1.000 <T	1.200	.	.	.	.
OCT	1.000 <T	.800 <T	.	.	.	.
NOV	BDL	.200 <T	.	.	.	.
DEC	BDL	.600 <T	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES						
BENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 5.0 (B1)		
JAN	BDL	.050 <T	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	.050 <T	.	.050 <T	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.050 <T
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
TOLUENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 24.0 (B4)		
JAN	BDL	.250 <T	.	.100 UCS	.	.100 UCS
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	.150 UCS	.	.050 UCS	.	BDL
MAY	BDL	.050 UCS	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.050 <T	.	.050 <T	.	.050 <T
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	.150 <T	.	.100 <T	.	.100 <T
OCT	BDL	.050 <T	.	.050 <T	.	.050 <T
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
ETHYLBENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 2.4 (B4)		
JAN	BDL	.050 <T	.	BDL	.	.050 <T
MAR	BDL	.050 <T	.	BDL	.	BDL
APR	BDL	.150 <T	.	.050 <T	.	BDL
MAY	BDL	.050 <T	.	.050 <T	.	.050 <T
JUN	BDL	BDL	.	BDL	.	.100 <T
JUL	BDL	.050 <T	.	.050 <T	.	.150 <T
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	.050 <T	.	BDL	.	.050 <T
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	.050 <T
P-XYLENE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 300 (B4)		
JAN	BDL	.100 <T	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
M-XYLENE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 300 (B4)		
JAN	BDL	.100 RMP	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	.200 <T
JUL	BDL	.100 <T	.	BDL	.	.100 <T
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
O-XYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 300 (B4)		
JAN	BDL	.050 <T	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	.050 <T	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
STYRENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 46.5 (D2)		
OCT	.250 <T	BDL	.	.250 <T	.	.100 <T
NOV	BDL	BDL	.	.250 <T	.	BDL
DEC	.050 <T	.050 <T	.	.200 <T	.	.150 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

SITE TYPE	WATER TREATMENT PLANT RAW	WATER TREATMENT PLANT TREATED	DISTRIBUTION SYSTEM SITE 1 STANDING	DISTRIBUTION SYSTEM SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	DISTRIBUTION SYSTEM SITE 2 FREE FLOW
1,1 DICHLOROETHYLENE (UG/L) DET'N LIMIT = .100 GUIDELINE = 7.0 (D1)						
JAN	BDL	BDL	.	BDL	.	BDL
MAR	BDL	.000 SPS	.	BDL	.	.000 APS
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
METHYLENE CHLORIDE (UG/L) DET'N LIMIT = .500 GUIDELINE = 1750 (D3)						
JAN	2.000 UCS	5.000 UCS	.	3.500 UCS	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
CHLOROFORM (UG/L) DET'N LIMIT = .100 GUIDELINE = 350 (A1+)						
JAN	BDL	1.600	.	2.300	.	6.300
MAR	BDL	28.600	.	10.700	.	12.200
APR	BDL	21.000	.	11.000	.	11.800
MAY	.500 <T	23.300	.	11.100	.	12.500
JUN	BDL	13.300	.	9.000	.	10.200
JUL	BDL	14.700	.	15.200	.	19.300
AUG	.100 <T	12.800	.	.	.	14.300
SEP	.100 <T	26.500	.	16.700	.	18.100
OCT	.100 <T	29.300	.	17.000	.	14.700
NOV	BDL	24.000	.	12.500	.	11.200
DEC	BDL	24.700	.	12.100	.	10.000
111, TRICHLOROETHANE (UG/L) DET'N LIMIT = .020 GUIDELINE = 200 (D1)						
JAN	BDL	.080 <T	.	.220 <T	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
DICHLOROBROMOMETHANE (UG/L)			DET'N LIMIT = .050		GUIDELINE = 350 (A1+)	
JAN	BDL	2.300	.	2.800	.	6.000
MAR	BDL	16.200	.	8.800	.	9.400
APR	BDL	12.000	.	8.000	.	8.250
MAY	.300 <T	13.900	.	7.450	.	8.000
JUN	BDL	9.150	.	6.500	.	7.400
JUL	BDL	9.100	.	10.000	.	10.250
AUG	BDL	8.750	.	.	.	9.150
SEP	BDL	15.200	.	10.350	.	11.000
OCT	BDL	14.700	.	11.600	.	10.300
NOV	BDL	14.550	.	9.800	.	8.300
DEC	BDL	14.100	.	9.200	.	7.950
CHLORODIBROMOMETHANE (UG/L)			DET'N LIMIT = .100		GUIDELINE = 350 (A1+)	
JAN	BDL	2.100	.	2.100	.	4.300
MAR	BDL	10.100	.	5.900	.	5.500
APR	BDL	6.700	.	4.100	.	3.800
MAY	.200 <T	5.300	.	3.200	.	3.200
JUN	BDL	4.300	.	3.300	.	4.700
JUL	BDL	2.600	.	4.700	.	4.400
AUG	BDL	5.000	.	.	.	5.700
SEP	BDL	7.700	.	5.700	.	6.200
OCT	BDL	7.600	.	5.500	.	4.800
NOV	BDL	5.500	.	4.600	.	3.700
DEC	BDL	6.000	.	4.400	.	3.600
T-CHLOROETHYLENE (UG/L)			DET'N LIMIT = .050		GUIDELINE = 10.0 (C2)	
JAN	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	.	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM ST CATHARINES (DE CEW WSS) 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JUL	BDL	BDL	.	BDL	.	BDL
AUG	BDL	BDL	.	.	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	.050 <T
BROMOFORM (UG/L)		DET'N LIMIT = .200		GUIDELINE = 350 (A1+)		
JAN	BDL	.200 <T	.	.200 <T	.	.400 <T
MAR	BDL	.400 <T	.	.400 <T	.	.400 <T
APR	BDL	.400 <T	.	.400 <T	.	BDL
MAY	BDL	.400 <T	.	.400 <T	.	.200 <T
JUN	BDL	.400 <T	.	.400 <T	.	.400 <T
JUL	BDL	.200 <T	.	.400 <T	.	.200 <T
AUG	BDL	.600 <T	.	.	.	.600 <T
SEP	BDL	1.000 <T	.	.800 <T	.	.600 <T
OCT	BDL	.600 <T	.	.600 <T	.	.600 <T
NOV	BDL	.400 <T	.	.400 <T	.	.400 <T
DEC	BDL	.600 <T	.	.600 <T	.	.400 <T
TOTL TRIHALOMETHANES (UG/L)		DET'N LIMIT = .500		GUIDELINE = 350 (A1)		
JAN	BDL	9.900	.	7.400	.	17.000
MAR	BDL	55.300	.	25.800	.	27.500
APR	BDL	40.100	.	23.500	.	23.850
MAY	1.000 <T	42.900	.	22.150	.	23.900
JUN	BDL	27.150	.	19.200	.	22.700
JUL	BDL	26.600	.	30.300	.	34.150
AUG	BDL	27.150	.	.	.	29.750
SEP	BDL	50.400	.	33.550	.	35.900
OCT	BDL	52.200	.	34.700	.	30.400
NOV	BDL	44.450	.	27.300	.	23.600
DEC	BDL	45.400	.	26.300	.	21.950

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
P/A BOTTLE		0	0 (A1*)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	5000. (B1)
PENTACHLOROPHENOL	NG/L	50.	60000. (B1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	146. (D4)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	100000. (A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A
HEPTACHLOR EPOXIDE	NG/L	1.0	3000. (A1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	280000.	(B1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	87000.	(B3)
PICHLORAM	NG/L	100.	2450000.	(D3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	14000.	(A1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION	NG/L	N/A	N/A	
MALATHION	NG/L	20.	160000.	(G)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(B3)
METHYLTRITHION	NG/L	20.	N/A	
PARATHION	NG/L	20.	35000.	(B1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PHORATE (THIMET)	NG/L	20.	35. (D2)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENOMYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	18000. (D3)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	70000. (A1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	50. (G)
METHYLENE CHLORIDE	UG/L	.500	1750. (D3)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	350. (D3)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (D1)
1,2-DICHLOROPROPANE	UG/L	.050	10.0 (G)
TRICHLOROETHYLENE	UG/L	.100	5.0 (D1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	1510. (D3)
1,4-DICHLOROBENZENE	UG/L	.100	5.0 (B1)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	200. (B1)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	46.5 (D2)